

LISTING OF CLAIMS:

The following listing of claims replaces all previous versions and listings.

1. (Currently amended) A booster circuit for a pre-drive circuit that drives a drive circuit of a brushless direct current single-phase motor characterized in that, wherein:

the drive circuit includes two pairs of series connectors of two serially connected main switching elements which are a pair of transistors, each pair of the serially connected main switching elements being connected between a direct current power supply of the drive circuit and ground, and a motor coil interconnected between pair junctions of the two serially connected main switching elements of the series connectors,

the booster pre-drive circuit provides ON/OFF power flow control to the motor coil which is connected between a direct current power supply and a ground of the drive circuit, and wherein ON/OFF control of the respective main switching elements is prescribed at any timing from any direction, and wherein

the booster circuit requires provides a control voltage that exceeds a power supply voltage to turn ON the two each of the two pairs of serially connected main switching elements of the drive circuit at the direct current power supply side,

the two main switching elements includes booster circuit including a first transistor boost control switching element that turns ON when a first end side of the motor coil reaches a higher electric potential than another end side of the motor coil and charges a first capacitor from the direct current power supply via a first diode, a second transistor boost control switching element that turns ON when the another end side of the motor coil reaches a higher electric potential than the first end side of the motor coil and mutually conducts electricity between a terminal at a side of a connection between the first transistor boost control switching element and the first capacitor and the direct current power supply to increase the electric potential of at a side of a junction of the first capacitor and the first diode, and a second capacitor that receives an electric charge and is charged from the first capacitor via a second diode when the second transistor boost control switching element turns ON and is connected between said second diode and a switch terminal of at the direct current power supply side of the second transistor boost control switching element, and

wherein a boost voltage output is obtained from the connection path of between the second diode and the second capacitor.

2. (Currently amended) The booster circuit according to claim 1, further characterized in that comprising parallel circuits of a diode and a resistor respectively inserted and connected between the first end side of the motor coil and a control terminal of the first boost control switching element and between the another end side of the motor coil and a control terminal of the second boost control switching element, wherein a the diode ~~that~~ faces the forward direction with respect to ~~the~~ control terminals of the respective boost control switching elements and a ~~resistor parallel circuit are respectively inserted and connected between the first end side of the motor coil and the control terminal of the first transistor and between the another end side of the motor coil and the control terminal of the second transistor.~~

3. (Currently amended) The booster circuit according to claim 1, wherein respective voltage restricting elements are connected between respective control terminals ~~and ground side switch terminals~~ of the first and second ~~transistors~~ boost control switching elements ~~and a ground side switch terminal~~.

4. (Currently amended) The booster circuit according to claim 2, wherein respective voltage restricting elements are connected between the respective control terminals ~~and ground side switch terminals~~ of the first and second ~~transistors~~ boost control switching elements ~~and a ground side switch terminal~~.

5. (Original) The booster circuit according to claim 3, wherein the voltage restricting elements are Zener diodes.

6. (Original) The booster circuit according to claim 4, wherein the voltage restricting elements are Zener diodes.

7. (Currently amended) The booster circuit according to claim 1, further characterized in that comprising a filter circuit is inserted into the boost voltage output path from the connection path between the second diode and the second capacitor.

8. (Currently amended) The booster circuit according to claim 2, further characterized in that comprising a filter circuit is inserted into the boost voltage output path from the connection path between the second diode and the second capacitor.

9. (Currently amended) The booster circuit according to claim 1, wherein the first boost control switching element is a first transistor and a base of the first transistor is connected at a junction of the main coil and a first series connector pair of the serially connected main switching elements of the drive circuit via a first parallel diode-resistor circuit.

10. (Original) The booster circuit according to claim 9, further comprising a first Zener diode connected between the base and emitter of the first transistor.

11. (Currently amended) The booster circuit according to claim 1, wherein the second boost control switching element is a second transistor and a base of the second transistor is connected at a junction of the main coil and a second series connector pair of the serially connected main switching elements of the drive circuit via a second parallel diode-resistor circuit.

12. (Original) The booster circuit according to claim 11, further comprising a second Zener diode connected between the base and emitter of the second transistor.

13. (New) A booster circuit configured to provide a boost voltage to a pre-drive circuit which controls the application of power to a motor coil associated with a brushless direct current single-phase motor, the motor coil coupled to a drive circuit including a direct current power supply and to ground, the booster circuit comprising:

- a first boost control switching element coupled to a first side of the motor coil;
- a second boost control switching element coupled to a second side of the motor coil and the first boost control switching element; and
- a first diode and a second diode coupled respectively to a first capacitor and a second capacitor and to the first boost control switching element and the second boost control switching element,

wherein:

- the first boost control switching element is configured to:

- turn ON when a first voltage associated with the first side of the motor coil exceeds a second voltage associated with the second side of the motor coil, and
 - charge the first capacitor from the direct current power supply via the first diode,

- the second boost control switching element is configured to:

- turn ON when the second voltage associated with the second side of the motor coil exceeds the first voltage associated with the first side of the motor coil, and

- conduct from the first diode, the first capacitor, and the direct current power supply to increase the electric potential of a junction of the first capacitor and the first diode, to in turn cause the first capacitor to charge the second capacitor via the second diode, and

- a boost voltage is obtained from a node connecting the second diode and the second capacitor and is provided to the pre-drive circuit.

14. (New) A booster circuit in accordance with claim 13, wherein:

- the first boost control switching element and the second boost control switching element further comprise respective first and second switch terminals, first and second control terminals and first and second voltage restricting elements;

- the first voltage restricting element is connected between the first switch terminal and the first control terminal; and

- the second voltage restricting element is connected between the second switch terminal and the second control terminal.

15. (New) A booster circuit according to claim 14, wherein the respective first and second voltage restricting elements are respectively first and second Zener diodes each arranged in a forward direction towards the respective first and second control terminals of the respective first and second boost control switching elements.

16. (New) A booster circuit according to claim 13, further comprising a filter circuit coupled to the node connecting the second diode and the second capacitor for reducing noise associated with the boost voltage.